



COMPUTER TECHNOLOGY FOR QUALITY IMPROVEMENT IN TEACHER EDUCATION

Yashpal D. Netragaonkar, Ph.D. Assistant Professor, Abhinav Education Society's College of Education Ambegaon B.K. Pune.(Maharashtra)

Abstract

This report explores an importance of the Computer technology and Computer Assisted Instruction. Computer technology and Computer Assisted Instruction, Computer Mediated Instruction, play an important role in quality improvement in teacher Education. This article explains how the quality improved by using Computer technology and Computer Assisted Instruction. Further it explores the steps which are useful for designing the CAI program. In this compilation an investigator explains the principles, skills, and values of CAI. Effective use of Computer technology and Computer Assisted Instruction program leads to develop some characteristics those characteristics were also discussed which may yield a drastic quality improvement in teacher Education is also discussed. Some recommendations are made by investigator which will lead to bring up quality improvement in Teacher Education by using Computer technology and Computer Assisted Instruction program.

Keywords: - Computer Technology, Quality, Teacher Education



Scholarly Research Journal's is licensed Based on a work at www.srjis.com 4.194, 2013 SJIF© SRJIS2014

INTRODUCTION

Today's world is the world of Science and Technology, 21st Century is a knowledge based society. This is the picture of modern India, built after Independence. We must express our gratitude's to our first Honorable Prime Minister Jawaharlal Nehru and Indian scientist team. Our former President Dr. A.P.J. Abdul Kalam who is the firm believer in the use of Science and Technology as he asserted, "Technology is the Key to Development". As a

powerful tool for National development. It is his vision to make India 4th largest economy in the world by year 2020. It is possible through our teacher Education system.

According to Father of Nation Gandhiji, *"True teacher Education of the intellect can come only through proper exercise and training of bodily organs hand heart and head."* Commenting on use of audio-visual aids the Kothari Commission (1964-66) observed that, it should indeed to bring about an *"Educational Revolution"* in the country. It further stated that the supply of *teaching aids to every school was essential for the improvement of the quality in teaching.* The National policy of teacher Education 1986 and as modified in 1992 has laid a great stress on the use of teaching aids to make teaching learning process more effective and in realistic way. NKC Report to the Nation (2006) observed that, *"Development of Science and Technology is essential to ensure economic and social advancement of people. In order to be a leader in global arena. It is imperative that India emerges a leader in the spheres of science and technology."*

However, our existing teacher Education system faces number of problems. Our schools and colleges producing citizens who are unable to fulfill the economic, social and political demands of the Nation. In India day by day number of colleges and schools are increasing more rapidly, minimum 60-70 students study in a class. It is so difficult to teach student properly. This implies we have to pay more attention to Quality of teacher Education. To solve this problem, there are so many ways, among all of them use of teacher Educational Technology is one way to solve such problem and quality of teacher Education would be improved. There is a necessity to update our teacher Education system by applying teacher Educational Technology in daily teaching-learning process; which should become one part of our teaching process. A better Quality in teacher Education will produce responsible and productive generation.

Need and Significance of Computer Technology and Computer Assisted Instruction

Use of Computer technology or multimedia is a new recently developed trend in teacher Education termed as Educational Technology (E.T) or Instructional Technology. This includes Over head Projectors, Power Point presentation through computer CAI, CAL, PBL and LCD projectors, audio-video cassettes, multimedia instructional system. Each of this teaching aid has its own advantage supplementing in classrooms. In this article we are going to discuss how CAI can enhance the quality in teacher Education.

The Computer technology and CAI deals the problems more effectively and more flexible kind of branching is possible in CAI students can learn with their own pace and time.

Each learner's performance is automatically recorded and evaluated feedback provided to teacher and parents. Thus CAI plays the most important role in improvement of Quality in teacher Education. CAI package may consist of video as well as audio tape recordings, film strips and so on. Student may make queries to the computer by means typewriter and key-board and get answers in printed forms, hence Computer technology and CAI plays crucial role in teaching-learning process in classroom.

Definition

Quality

Quality in higher teacher Education is a nebulous notion. Its attributes are complex and intangible. It remains highly resistant to assessment by means of other than judgment that represents personal values as much as professional standards.

- A. Lindsay.

Quality in the context of higher teacher Education can be defined as judgment about the level of goal achievement and the value and worth of that achievement.

- G. Harmann & V. Meek (2000)

Quality is the capability of products or services to knowingly satisfy those preconceived composite wants of the users that are intelligently related to the characteristics of performance, and do not cause major overt reactions or actions by other people.

-Johnson (1987)

We have defined Quality as the degree of excellence of the entire teacher Educational experience.

- D. Doherty- Delmore & E. Shaker (2002).

CAI

"A programme in which instructions are given directly to students by allowing them to interact with lesson programmed in to the system."

This facilitates the learner to comprehend content knowledge well by following instructional modes of CAI. Following are the instructional modes of CAI ar

- Drill and practice Mode
- Tutorial Mode
- Simulation Mode
- Gaming Mode

- Problem solving Mode
- Discovery Mode

Delimitations of CAI

- CAI is very expensive.
- CAI cannot replace the teacher.
- CAI cannot appreciate the emotions of students.
- CAI programmer cannot solve the Psychological & teacher Educational problems.
- CAI needs the help of experts such as computer engineers, script writers, system operators, subject experts, etc.

Steps Involved in Designing of CAI Programme for Quality Improvement in Teacher Education

Before design the CAI programme for Quality Improvement in teacher Education, it is necessary to identify the prerequisite knowledge, psychological, intellectual, sociological background etc., due to which teaching-learning process may become effective and Quality get maintained. There are some steps for designing CAI, which enhances Quality of teacher Education dramatically are given as bellow.

a) Selection of Units: - It is not possible to prepare CAI programme for each unit which is placed in curriculum. It is very important to find such units which are suitable, it means that during designing CAI programme we can inserts pictures, or one may add computer effects, which may give challenge to our creativity through which content can be explained in a better way. Such units are selected.

Due to this student can think in creative way which leads to enhance Quality in teacher Education.

b) Breaking Units in to Subunits: - It is necessary to break each unit into subunits for effective presentation. Subject matter is broken into a sequence of small units students can learn with his own pace and time. It implies that dullest dull student can learn in sequential manner, which leads to Quality Improvement in teacher Education.

c) Identifying objectives of each unit, subunits: -Identification of objectives of each unit, sub units which help to programmer/ investigator to which extent lesson should be taught. It means that depth of knowledge should be maintained up to some level. Teaching-learning process

become directional and achieves specified objectives. Thus it leads to develops Quality Improvement in teacher Education.

e) **Identifying Target group:** - This step involves an identification of age of group for which CAI programme being designed whether it meets individual needs or not. This step also helps to identify the psychological background of the learner, also it enrich Quality Improvement in teacher Education.

f) **Modifying Objectives/Pre-requisite Objectives:** - This step involves the modification of objectives of units/subunits whether it obtains or not; specific depth of content knowledge and also CAI programme may meets individual difference or not. If there is a necessity to modify the objectives or pre-requisite objectives to meet individual needs and difference.

g) **Deciding Content outline, Script writing:** - Content outline is decided according to learning objectives. It should be specified in general terms they need to further breaking into specific objectives. Content outline should be prepared in sequential manner, by considering the principles, maxims of teaching, and application level.

Script writing is an important step; it involves what kind of learning material should be included in programme, material in written form and picture animation effects, Graphics, Flash animation etc.

h) **Selection of Content related material:**-This step involves the collection of information which may be collected from different sources like standard books, journals, magazines, web materials by using these sources and our own knowledge and experience, mastery over the subject develop learning material.

i) **Selection of media, audio-visual aids:** - After the collection of Content related material it is very important to select appropriate audio-visual media, material relevant to collected information. Therefore appropriate material and media should be selected for providing effective learning experiences. This results in the Quality Improvement in teacher Education.

j) **Defining and assigning personnel roles:** -

During implementation of CAI programme teacher has to play a various role to assist learner to achieve the specified objectives.

k) **Synthesizing and implementing the Instructional System:** - This step involves the execution phase of CAI programme.

From these steps one may conclude that such type of project work should be included in the curriculum; through which Quality of teacher Education get maintained.

Principles of CAI

1) Principles of Small Steps: - By applying this principle dullest student can learn as effectively as a brightest student, if the subject matter is provided in proper and in small step, by arranging subject matter in sequential manner. Means it create equity and Quality in teacher Education.

2) Principle of active responding: - By applying principle of Psychology, student can learn better and faster when they are actively participating in teaching-learning process. It is not possible to ask questions, to each and every student in the Class-room, but in CAI programme after every programmed text large number of questions is provided. One question to each small step, hence student can take active participation and respond actively. It creates good teaching-learning atmosphere, which concerns with Quality teacher Education.

3) Principle of Reinforcement: - Every response given by student is approximately correct, but it should reinforce immediately, delayed reinforcement fails to work. This is possible only when, one teacher has taught to only one student at a time. However, classroom this kind of teaching is hardly possible in this CAI may play crucial role.

4) Principle of Self-pacing:- Instructional programme based on the assumption that learning takes effectively, if the learner is allowed to learn with his own speed and time. This is known as principle of self-pacing. Means CAI meets individual needs of student's and it allows to interact which concerns with Quality.

5) Principle of Student Evaluation: - Each learner leaves response record of his study because each student has to write response for each step on response sheet.

6) Principle of Flexibility: - Another appealing character of CAI is the flexibility to teach higher cognitive levels subjects such as mathematical theorems, derivations, more complicate chemical reactions, mechanisms and difficult science concepts. This implies that, students can learn difficult subject repetitively number of times, till their understanding. It leads to develop enhancement in Quality teacher Education take place.

7) Principle of Effective Communication: - While designing the CAI programme complex sentences, two ideas in one sentence should be avoided. It means that use specific words, pronouns. Ask questions and also provides answers and try to maintain continuity of thoughts that is the principle of effective communication should be used.

8) **Principle of Interlinking:** - This principle is useful to student to move from one frame to another frame, so that they can learn effectively according to their needs. Here students can move one frame to another frame to solve their quarries and difficulty, it concerns with Quality teacher Education

Role of CAI in Improvement of Quality in Teacher Education

To Quality Improvement in teacher Education, it is necessary to use the CAI programme in an effective and in a proper way. It results in enhancement of Quality teacher Education fewer than three heads as Knowledge, skill, and values in following way.

1. CAI produces learning experiences more effectively and efficiently, hence Quality Enhancement takes place automatically.
2. A maximum amount of prerequisite information, knowledge is stored and is made available for student more rapidly, according to their needs; hence Quality Enhancement takes place automatically.
3. The interaction between student and instructional programme is made more dynamic and more individualized in CAI than in any other system, due to which Quality in teacher Education increases rapidly.
4. CAI permits evaluation of effectiveness of the teaching procedure as well as teaching material-aids, teaching methods used, which may helps to enhance the Quality in teacher Education.
5. CAI collects detail records of students' performance & provides immediate feedback to teacher as well as parents too. This may helps to teachers and parents to maintain the Quality records of students' teacher Education.
6. CAI has its own capability of assisting teacher in the development of instructional material.
7. CAI makes mathematical calculations extremely easily & speedy.
8. CAI brings equity and Quality in teacher Education.
9. CAI has the flexibility to meet the individual needs and abilities of each student.
10. CAI provides immediate feedback.
11. CAI provides motivation and stimulation during the learning.
12. CAI enhances to teacher to take a fresh look at they teach and way in which students learn.
13. CAI encourages students to think in analytical and divergent way.
14. CAI create homogenizes atmosphere in the classroom.

15. CAI can reduce the risk of failure of students.

16. CAI develops awareness among the teachers about teaching methods.

17. CAI reduces monotonousness in the classroom.

Skills : CAI programme may yield a significant enhancement in teaching as well as in Quality teacher Education. If the CAI programme implemented properly & effectively. It leads to integrate the following skills among the learner.

a) Skill of content analysis and arranging content in learning sequence.

Skill to present the content in to small steps.

b) Skill of provide the reinforcement to learn by confirming their responses.

c) Skill to develop the situation for achieving the desired learning objectives.

d) Skill to consider the individual variation and generate the learning situation that they can learn according to their own pace.

e) Skill to identify the objectives and are able to write them in behavioral term. Students became independent, they can learn by using various sources and techniques which may lead to develop Skill of divergent thinking.

f) CAI can create Innovative Atmosphere in class room, due to this teaching -learning process become effective and successfully thus enhancement in Quality in teacher Education takes place.

g) Skill of Creative Thinking, it leads to develop innovative power, collection of accurate & correct knowledge, current information.

CAI cans leads to create cognizant / sensitiveness during learning i.e. h) Skill of Awareness.

i) In CAI programme student may learn without any help i.e. Skill of Individual learning/ Self learning.

Values of CAI

a) CAI is best Motivator.

b) CAI is vicarious experience to learner.

c) CAI contributes to increase Retentivity.

d) CAI programme based on maxims and methods of teaching i.e. Concrete to Abstract, Known to Unknown, Learning by Doing. It concerns with Quality Improvement in teacher Education.

e) CAI programme provides a touch of reality to the learning situation. Due to which learning experiences become more Virtual and more Retentive; and Quality of teacher Education get enhanced.

- f) CAI provides vivid pictures, Ideas in students mind. It develops divergent thinking power; it means that enhancement in Quality teacher Education.
- g) CAI meets every individual needs, differences of different types of students; it implies that CAI brings Equity and Quality teacher Education for all.
- h) CAI helps to develop higher faculties among the students i.e. Imagination power, Thinking power, Reasoning power, Critical & Creative thinking power, Inventiveness and other faculties, which results in enhancement in Quality teacher Education takes place.
- i) CAI gives a positive attitude towards real life.
- j) Due to use of CAI programme the overall class-room environments become Conducive to Creative discipline; which is needed for enhancing the Quality teacher Education,

Recommendations

1. During designing the CAI programme for quality in teacher Education. Investigator has made some recommendations through which Quality of teacher Education get enhanced successfully.
2. It also helps to teacher to know the facts which are most essential before implementing the CAI programme in the class-room.
3. Teacher should be know about how to use the CAI programme effectively
4. How to evaluate the developed CAI programme and how to record student's response and provide feedback according to the requirement which may lead to improve the quality in teacher Education.
5. Teacher must be ensuring that computer system used for the programme has enough memory to run programme in a proper way.
6. Teacher should aware about the electric supply without which it is not possible to run the CAI programme such arrangement should made available before run the programme.
7. Teacher should know the Psychological background of the student.
8. Teacher should ensure that the developed programme meets individual needs, weather it achieves specified objectives or not. If there is necessity to modify the specified objectives then he can do it.
9. Teacher should know which principles values are inculcated, which maxims of teaching being used during designing the CAI programme.
10. Teacher should well trained and all ICT knowledge, training given to every teacher.

11. Such type of ICT based project work should be placed in the curriculum at primary and secondary level. Due to which cognitive power will lead to develop.

Conclusions

Schools and college are the formal institutions to train the youngster trainees. Today's parents are more aware about their child future, academic performance. It means that they are always asking about Quality and progress. In this, Computer Technology and CAI is a powerful tool in hands of teacher. It not only Enhance the Quality of teacher Education, but also students performance. Applying these principles of CAI in the Class-rooms, we will found that student can achieve specified objectives of teacher Education as well as lesson. It also leads to develop various values, and skills through which Quality improvement take place in higher cognitive domain. CAI also helps to achieve knowledge level, application level. It means that Quality of student performance would get automatically increased through CAI.

References

- Bagulia, Abdul, Mannan. (2005). Modren Education Audio-Video Aids. New Delhi: Anmol Publication Pvt. Ltd.
- Battacharya, S. K. (2006). Educational Technology. New Delhi: Abhishek Publication.
- Bhatt, B.D., Sharma, S.R. (1992). Educational Technology Concept & Technique. New Delhi: Kanishka Publishing House.
- Mahapatra, B.C. (2006). Education in Cybernetic Age. New Delhi: Sarup & Sons.
- Mohanty, Jaganath, (2005). Educational Technology. New Delhi: Deep & Deep Publication.
- National Knowledge Commission, Report to the Nation. (2007). New Delhi: Govt. of India.
- Pandya, S. R. (2004). Administration & Management of education. Mumbai: Himalaya Publishing House.
- Powar, K. B. (2005). Quality in higher Education. New Delhi: Anamaya Publishing
- Rao, Usha, (2001). Educational Technology. Mumbai: Himalaya Publishing House.
- Reddy, G. S. (July2002). " Technology is the Key to development." EDUTRACKS. 6-10.
- Robert, Henich; and others. (1986). Instruction Media and New Technologies of Instruction Computer. New York: MAC MILLAN PUBLISHING COMPANY.
- Vashist S.A., (1997). Research in Educational Technology and Related Research. Jaipur: Book Enclave.